AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

Serial Number: 10/815,540 Filing Date: March 31, 2004

Title: ADHESIVE OF FOLDED PACKAGE

Assignee: Intel Corporation

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IN THE CLAIMS

Please amend the claims as follows:

- 1. (Canceled)
- 2. (Currently Amended) A method of forming a package comprising:

supporting a die on a flexible substrate;

encapsulating the die with a die encapsulant;

folding a flap of the flexible substrate over the die encapsulant;

introducing fold adhesive between the folded flap of the flexible substrate and a surface of the die encapsulant;

conforming the fold adhesive to the surface such that the fold adhesive is substantially flat; and The method of claim 1 further comprising

curing the fold adhesive, wherein the fold adhesive has a volumetric cure shrinkage of less than about 0.8%.

- 3. (Original) The method of claim 2 wherein curing includes a partial cure of the fold adhesive using a cure process with at least one of temperature and pressure, and then a substantially full cure using a temperature batch cure process.
- 4. (Currently Amended) The method of claim 2 [[1]] further comprising plasma cleaning to remove releasing agents on the surface of the die encapsulant and on a front side of the substrate before dispensing the fold adhesive.
- 5. (Currently Amended) The method of claim 2 [[1]] wherein the fold adhesive is dispensed onto the die encapsulant before the flexible substrate is folded over the die encapsulant.

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6. (Original) The method of claim 2 wherein the volumetric cure shrinkage of the adhesive facilitates a back side of the flexible substrate at the folded flap to become a substantially flat

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upper surface of the package.

7. (Original) The method of claim 6 further comprising minimizing a z-height of the

flexible substrate.

8. (Currently Amended) The method of claim 2 [[1]] further comprising supporting a top

package upon the folded flap of the flexible substrate.

9. (Currently Amended) A method of forming a package comprising:

supporting a die on a flexible substrate;

encapsulating the die with a die encapsulant;

folding a flap of the flexible substrate over the die encapsulant;

introducing fold adhesive between the folded flap of the flexible substrate and a surface

of the die encapsulant;

conforming the fold adhesive to the surface such that the fold adhesive is substantially

flat;

supporting a top package upon the folded flap of the flexible substrate; and The method

of claim 8 further comprising:

providing solder joints between the top package and a substantially flat upper surface of

the folded flap of the flexible substrate; and

maximizing reliability of the solder joints by transferring a substantial amount of stress

from the solder joints to the fold adhesive, wherein the fold adhesive is substantially compliant

due to a Young's modulus of less than about 600 MPa at about room temperature, and an

elongation at break greater than about 100% at about room temperature.

10. (Currently Amended) The method of claim 2 [[1]] wherein the fold adhesive is selected

from the group consisting of at least one of silicone, a silicone modified epoxy, a polyimide-

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siloxane based system, vinyl terminated silane, hydrogen terminated silane, platinum catalyst, fumed silica, polyimide siloxane, aliphatic epoxy, phenol hardener, imidazole catalyst, an epoxy, an amine end capped silicone, phosphine catalyst, a silica filler and other filler particles.

(Currently Amended) The method of claim 2 [[1]] wherein the fold adhesive is selected 11. from the group consisting of at least one of silicone, a silicone modified epoxy, and a polyimidesiloxane based system.

12. (Currently Amended) A method of forming a package comprising:

supporting a die on a flexible substrate;

encapsulating the die with a die encapsulant;

folding a flap of the flexible substrate over the die encapsulant;

introducing fold adhesive between the folded flap of the flexible substrate and a surface of the die encapsulant; and

conforming the fold adhesive to the surface such that the fold adhesive is substantially flat, The method of claim 1

wherein the fold adhesive is selected from the group consisting of at least one of vinyl terminated silane, hydrogen terminated silane, platinum catalyst, fumed silica and other filler particles.

- 13. (Currently Amended) The method of claim 2 [[1]] wherein the fold adhesive is selected from the group consisting of at least one of polyimide siloxane, aliphatic epoxy, phenol hardener, and imidazole catalyst.
- 14. (Currently Amended) The method of claim 2 [[1]] wherein the fold adhesive is selected from the group consisting of at least one of an epoxy, an amine end capped silicone, phosphine catalyst, and a silica filler.

Claims 15- 30. (Canceled)

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31. (New) The method of claim 9 wherein the volumetric cure shrinkage of the adhesive facilitates a back side of the flexible substrate at the folded flap to become a substantially flat

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upper surface of the package.

32. (New) The method of claim 9 further comprising minimizing a z-height of the flexible

substrate.

33. (New) The method of claim 12 further comprising curing the fold adhesive, wherein the

fold adhesive has a volumetric cure shrinkage of less than about 0.8%.

34. (New) The method of claim 12 further comprising partial curing of the fold adhesive

using a cure process with at least one of temperature and pressure, and then a substantially full

cure using a temperature batch cure process.